

REMARKS

Favorable reconsideration is respectfully requested.

The claims are 1-11 with claims 8 and 9 being withdrawn from consideration.

The above amendment makes a minor technical revision to claim 1 and adds new claims 10 and 11, support for which is evident from the disclosure from page 11, line 21 to page 12, line 17.

Claims 1-7 were rejected under 35 U.S.C. § 102(b) as anticipated by Nishi et al. (U.S. 5,611,850).

Claims 1-7 were rejected under 35 U.S.C. § 102(b) as anticipated by Whitbourne (U.S. 5,001,009).

Claims 1, 2, 5 and 6 were rejected under 35 U.S.C. § 102(b) as anticipated by Miller et al. (U.S. 5,300,394).

Claims 1, 4 and 5 were rejected under 35 U.S.C. § 102(b) as anticipated by Ishibashi et al. (U.S. 5,554,489).

These rejections are respectfully traversed.

A brief discussion of the present invention will be of assistance appreciating applicants' reasons for traversal of the rejection.

The present invention is directed to an over-coating agent being applied to cover a substrate having thereon photoresist patterns and allowed to shrink under heat so that the spacing between adjacent photoresist patterns is lessened, with the applied film of the over-coating agent being removed substantially completely to form fine patterns.

The over-coating agent as an essential feature contains a water-soluble polymer and a water-soluble fluorine compound.

The over-coating agent of the invention can reduce microfoaming and defects to produce fine trace patterns that have good leveling and coating properties and which also present satisfactory profiles and meet the characteristics required of today's semiconductor devices.

Turning to the cited references:

The composition disclosed in Nishi et al. (U.S. 5,611,850) is used for an anti-reflective coating to cover photoresist films on a substrate, where the photoresist films are in the state of not yet being patterned. Nishi et al. does not teach at all the essential concept of the present invention of the thermal shrinkage of the coating agent, thereby to lessen the spacing between adjacent photoresist patterns, with the applied film of the over-coating agent being removed substantially completely to form fine patterns. These are important features of the present invention. Therefore, the over-coating agents in claims 1-7 are not anticipated by Nishi et al.

The composition disclosed in Whitbourne (U.S. 5,001,009) is directed to hydrophilic, lubricant coating that make biomedical devices slippery when wet. Whitbourne does not teach at all a technical concept of the present invention of the thermal shrinkage of the coating agent, thereby to lessen the spacing between adjacent photoresist patterns, with the applied film of the over-coating agent being removed substantially completely to form fine patterns. These are important features of the present invention. Therefore, the over-coating agents in claims 1-7 are not anticipated by Whitbourne.

Miller et al. (U.S. 5,300,394) discloses a solid particle aqueous dispersion of a compound useful in imaging. Miller et al. does not teach at all a technical concept of the present invention of the thermal shrinkage of the coating agent, thereby to lessen the spacing between adjacent photoresist patterns, with the applied film of the over-coating agent being removed substantially completely to form fine patterns. These are important features of the present invention. Therefore, the over-coating agents in claims 1, 2, 5, 6 are not anticipated by Miller et al.

Ishibashi et al. (U.S. 5,554,489) discloses a method of forming a fine resist pattern using an alkaline film covered photoresist. The alkaline film makes the surface of the resist insoluble so as to prevent reduction in a film thickness of the resist even in the case of out of focus in exposure. Ishibashi et al. does not teach at all a technical concept of the present invention of the thermal

shrinkage of the coating agent, thereby to lessen the spacing between adjacent photoresist patterns, with the applied film of the over-coating agent being removed substantially completely to form fine patterns. These are important features of the present invention. Therefore, the over-coating agents in claims 1, 4, 5 are not anticipated by Ishibashi et al.

Further, none of the cited references disclose or suggest the features of new claims 10 and 11, namely, the inclusion of a water-soluble amine and particularly an alkanolamine in the composition.

The advantageous use of such amines is discussed in the present specification at page 11, line 21 et seq.


For the forgoing reasons, it is apparent of the rejections on prior art are untenable and should be withdrawn.

No further issues remaining, allowance of this a application is respectfully requested.

If the Examiner has any comments or proposals for expediting prosecution, please contact undersigned at the telephone number below.

Respectfully submitted,

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March 11, 2005